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EXAMINER	
DITRANI, ANGELA M	

ART UNIT	PAPER NUMBER
3676	

NOTIFICATION DATE	DELIVERY MODE
10/29/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/597,049	CAMBUS-BRUNET ET AL.	
	Examiner	Art Unit	
	Angela M. DiTrani	3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11 and 13-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11 and 13-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 1-11 and 13-18 are objected to because of the following informalities: In claim 1, line 1, -of- should be added between "treatment" and "an." In line 2, "comprised" should be replaced with –comprises- to correct the grammatical informality. Line 3 should be replaced with –placing a treatment fluid in the formation, wherein the treatment fluid comprises a cross-. All claims dependent upon claim 1 are thereby objected to as well. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. (US 6,777,377 – cited in previous action) in view of Moradi-Araghi et al. (US 5,789,350 – cited in previous action).

Myers et al. teaches a method of drilling bore holes used in oil and gas exploration wherein a composition is employed that is capable of stabilizing the bore hole by incorporation of a sealing composition within the drilling fluid; the composition seals and plugs highly porous and permeable zones, thereby preventing loss of excavation fluid to the porous and permeable zones and stabilizing the drilling operation therein (see entire disclosure, esp. col. 2, l. 65-col. 4, l. 64). The reference, however, fails to teach the stabilizing treatment comprising a cross-linkable polymer and cross-linking agent, wherein the polymer and cross-linking agent are gelled in situ, and,

subsequently, activated by placement of an activator fluid in the well. Moradi-Araghi et al. teaches a treatment fluid and method of use thereof comprising injecting a cross-linkable polymer (col. 3, l. 58-col. 4, l. 47) and a cross-linking agent (col. 4, l. 48-col. 5, l. 3) into a formation surrounding a borehole, allowing the treatment fluid to gel in-situ, and pumping, after placement of the treatment fluid in the formation (col. 6, l. 18-39), an activator fluid into the well to accelerate the cross-linking of the polymer and the development of gel strength (col. 5, l. 4-18) for the purpose of, but is not limited, to permeability alteration, water coning correction, water shutoff, gas shutoff, and zone abandonment (col. 3, l. 2-4). Since the composition of Moradi-Araghi et al. is not limited to the aforementioned treatments, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ the permeability altering treatment composition of Moradi-Araghi et al. within the drilling and stabilizing method of Myers et al. in order to achieve the predictable result of effectively sealing the permeable zones encountered while drilling therein, thereby, preventing loss of excavation fluid to the permeable formation and providing stabilization therein.

With respect to depending claim 2, Moradi-Araghi et al. teaches wherein the reaction between the activator and the treatment fluid is not exothermic (col. 5, l. 15-19).

With respect to depending claims 3-5, Moradi-Araghi et al. teaches the cross-linkable polymer as claimed (col. 3, l. 32-36; col. 3, l. 58-col. 4, l. 47).

With respect to depending claim 6, the reference teaches the cross-linking agent as a molecule or complex containing a reactive transition metal cation (col. 4, l. 48-col. 5, l. 3).

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. in view of Moradi-Araghi et al. as applied to claims 1 and 6 above, and further in view of Fox et al. (US 5,849,674 – cited in previous action).

Myers et al. in view of Moradi-Araghi et al. teaches the method as stated above, wherein Moradi-Araghi et al. teaches the treatment composition comprising a cross-linkable polymer and cross-linking agent as a molecule or complex containing a reactive transition metal cation including various zirconium complexes. The reference, however, is silent to the use of zirconium lactate as a cross-linking agent. Fox et al. teaches multivalent transition metal cation compounds capable of cross-linking gelable carboxylate-containing polymers, including those polymers taught by Moradi-Araghi et al., wherein zirconium complexes, including one of the more preferable as zirconium lactate, are employed for the purpose of cross-linking the carboxylate-containing polymer. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ zirconium lactate in order to cross-link the carboxylate-containing polymer within the composition of Moradi et al.

5. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. in view of Moradi-Araghi et al. as applied to claim 1 above, and further, in view of "Zirconium(IV) Chloride."

With respect to depending claims 8 and 9, Moradi-Araghi et al. teaches the treatment composition as stated above, wherein a pH-lowering agent can be subsequently injected into the formation after the composition. Although Moradi-Araghi et al. teaches various pH-lowering agents, wherein the agent can be any chemical that

can lower the pH of the composition, including a weak acid, the reference fails to explicitly teach the use of an activator solution comprising zirconium chloride or zirconium acetate, and, further, wherein the activator comprises 5-20% solution of zirconium chloride in seawater. "Zirconium(IV) Chloride" teaches zirconium chloride as a weak acid, and therefore, it would have been obvious to one having ordinary skill in the art to try a weak acid, such as zirconium chloride, as a pH-lowering agent within the method of Moradi-Araghi et al. in order to lower the pH of the polymer solution. Zirconium chloride is disclosed as a suitable cross-linker within the method of Moradi-Araghi et al. (col. 4, l. 62; col. 5, l. 28-40), and, therefore, it would be expected that zirconium chloride would further the cross-linking of the composition upon subsequent injection as well.

6. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. in view of Moradi-Araghi et al. as applied to claim 1 above, and further, in view of Parris et al. (US 6011075 – cited in previous action).

Myers et al. in view of Moradi-Araghi et al. teaches the method as stated above. The combination, however, is silent to the incorporation of colloidal silica within the treatment fluid. Parris et al. teaches a composition comprising an aqueous liquid comprising a water soluble cross-linkable forming gel such as acrylamide (see col. 5, lines 1-5) and a cross-linking agent comprising an inorganic material, such as a zirconium complex (see col. 5, lines 36-49), and a colloidal silica for the purpose of increasing the gel strength of the gel and assure both gel stability within the reservoir as well as suitable time allotment for composition injection (see col. 2, line 51 – col. 4, line

43). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to include colloidal silica within the treatment fluid of Myers et al. in view of Moradi-Araghi et al. in order to strengthen the cross-linkable gel, and, thereby better stabilize the formation.

7. Claims 11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. in view of Moradi-Araghi et al..

With respect to depending claim 11, Myers et al. in view of Moradi-Araghi et al. teaches the method and composition with respect to claim 1 as stated above. However, the reference fails to explicitly teach the method wherein the treatment fluid has a viscosity of up to 300 cp. Moradi-Araghi et al. teaches varying the concentration of the water-soluble polymer and cross-linking agent within the treatment fluid, and further, flow characterization caused by apparent viscosity change. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a viscosity of up to 300 cp insofar as because it has been held that "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller,* 220 F. 2d 454, 456, 105 USPQ 233, 235 (CCPA 1955)

With respect to depending claims 13 and 14, Myers et al. in view of Moradi-Araghi et al. teaches sequential injection of the treatment fluid and activator through a drill string insofar as because Moradi-Araghi et al. teaches sequential injection of the aqueous composition comprising the cross-linking agent and water-soluble polymer and

sequential injection of the pH lowering agent, and further, repetition of the sequence (col. 6, l. 18-51).

8. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. in view of Moradi-Araghi et al. as applied to claims 1 and 13 above, and further, in view of Gunn et al. (WO01/49971 - cited and provided by applicant with IDS receipt date 07/10/06 and cited in previous action).

Moradi-Araghi et al. teaches the sequential injection of the treatment fluid and activator as stated above. The reference, however, fails to teach the separation of the treatment fluid and activator by a spacer fluid. Gunn et al. teaches a process for altering permeability within a hydrocarbon formation wherein a spacer fluid is preferably employed between the injection of an aqueous polymer solution and cross-linking agent for the purpose of ensuring that significant mixing of the two does not occur in the injection facility or in the well bore. Although the composition and method of Moradi-Araghi et al. teaches the injection of a treatment composition comprising a cross-linkable polymer and cross-linking agent, and, subsequently, a pH modifying and activating solution, it would have been obvious to one having ordinary skill in the art at the time the invention was made to employ a spacer between the two in order to prevent mixing prior to the permeability altering composition reaching the intended zone, therefore, ensuring gelation within the appropriate location in the formation.

9. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Myers et al. in view of Moradi-Araghi et al..

With respect to depending claims 16 and 17, Myers et al. teaches the fluids applied to a zone of interest by means of a placement tool in the drill string (see Myers et al.)

With respect to claim 18, dependent upon claim 1, Myers et al. in view of Moradi-Araghi et al. teaches the bottomhole well temperature (see Moradi-Araghi et al. col. 6, l. 40-51) insofar as because the treatment composition of Moradi-Araghi et al. is capable of providing a gelling composition in formations at temperatures falling within the range as claimed.

Response to Arguments

10. Applicant's arguments filed 07/15/08 have been fully considered but they are not persuasive.

With respect to the Applicant's response to the rejection of claims 1-6 under 35 USC 103 (a) as being unpatentable over Myers et al. in view of Moradi-Araghi et al., wherein Applicant asserts that the applications of Moradi-Araghi et al. refer to static treatment applications or post-drilling applications and are not suitable for active treatment or treatment during drilling, where the rotation of the drill bite can disrupt the treatment steps, the Examiner disagrees. Moradi-Araghi et al. teaches wherein the composition and treatment can be applied to water shutoff, gas shutoff, and zone abandonment treatments, which, can be considered active treatment of a well, and further provides for wherein the composition and treatment can be applied within a permeability alteration treatment. Myers et al. teaches a method used for sealing or plugging porous or fractured subterranean formations encountered during drilling,

thereby providing for a permeability alteration treatment therein (col. 1, l. 10-25). The reference further teaches that drilling fluid technology has been adapted for use in excavation of earthen trenches for foundation and subterranean hydraulic barrier construction and that many attempts have been made to devise methods to control the loss of fluids to porous subterranean formations during all types of drilling operations insofar as because it is necessary to easily place a sealant and plugging agent that will not plug the mixing, pumping, or conveying equipment while still effectively sealing the porous zone in the borehole (col. 2, l. 34-63). Therefore, the Examiner maintains that it would have been obvious to apply the permeability alteration treatment of Moradi-Araghi et al. within a permeability alteration technique such as sealing while drilling as taught by Myers et al. in order to control the loss of fluids to the subterranean formation while drilling the well to effectively seal the zone in the borehole and the rejection of claims 1-6 under 35 USC 103(a) stands.

With respect to Applicant's arguments with respect to claim 7, wherein Applicant traverses the rejection for the reasons as applied to claims 1-6 above, the Examiner disagrees for the same reasons as stated above.

With respect to Applicant's arguments with respect to claims 8 and 9, wherein Applicant traverses the rejection for the reasons as applied to claims 1-6 above, the Examiner disagrees for the same reasons as stated above. Applicant further presents that the combination fails to suggest the use of a specific weak acid, nor is there motivation to use a zirconium chloride and acetate composition, especially to use a 5-20% solution of zirconium chloride in seawater. The Examiner disagrees. As stated

above within the rejection of claims 8 and 9, zirconium chloride is a weak acid and since zirconium chloride is disclosed by Moradi-Araghi et al. as suitable for use within the disclosed composition, one would expect that one of ordinary skill in the art would be capable of determining the appropriate concentration thereof to employ in order to obtain the desired degree of crosslinking therein.

With respect to Applicant's arguments with respect to claims 11, 13, and 14, and claims 16-18, wherein Applicant traverses the rejection for the reasons as applied to claims 1-6 above, the Examiner disagrees for the same reasons as stated above.

With respect to Applicant's arguments with respect to claim 10, wherein Applicant traverses the rejection for the reasons as applied to claims 1-6 above, the Examiner disagrees for the same reasons as stated above. Applicant further presents that the method of Parris et al. applies to a static application and that nothing in Parris et al. teaches that such a method could be applicable for active treatment or during drilling. The Examiner further disagrees in that the gel of Parris et al. can be employed within a selective plugging treatment of permeable zones in a subterranean formation and, as stated above within the response to arguments of claims 1-6, Myers et al. teaches a method used for sealing or plugging porous or fractured subterranean formations encountered during drilling, and, further, the adaptation of methods to control the loss of fluids to porous subterranean formations during all types of drilling operations insofar as because it is necessary to easily place a sealant and plugging agent that will not plug the mixing, pumping, or conveying equipment while still effectively sealing the porous zone in the borehole. Therefore, the Examiner maintains that it would have been

obvious to apply the permeability alteration treatment of Myers et al, in view of Moradi-Araghi et al. and further in view of Parris et al. within a permeability alteration technique such as sealing while drilling as taught by Myers et al. in order to control the loss of fluids to the subterranean formation while drilling the well to effectively seal the zone in the borehole.

With respect to Applicant's arguments with respect to claim 15, wherein Applicant traverses the rejection for the reasons as applied to claims 1-6 above, the Examiner disagrees for the same reasons as stated above.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela M. DiTrani whose telephone number is (571)272-2182. The examiner can normally be reached on M-F, 6:30AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer Gay can be reached on (571)272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AD
10/23/08

/Zakiya W. Bates/

Primary Examiner, Art Unit 3676